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EXAMINER	
WANG, JIN CHENG	
ART UNIT	**PAPER NUMBER**
2628	

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/785,659	LEVY ET AL.	
	Examiner	Art Unit	
	Jin-Cheng Wang	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,7-11,13-24,28,30-35 and 37-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 7-11, 13-24, 28, 30-35, and 37-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendments

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/28/2006 has been entered. Claims 1, 24, 38-39, and 45 have been amended. Claims 58-59 have been newly added. Claims 2-6, 12, 25-27, 29 and 36 have been canceled. Claims 1, 7-11, 13-24, 28, 30-35, and 37-59 are pending in the present application.

Response to Arguments

Applicant's arguments filed May 28, 2006 have been fully considered but they are moot in view of the new ground of rejection set forth in the Office Action.

Takala teaches a method of changing the visual appearance of a designated area of an exposed surface of a discrete, manipulable key of a keypad, the method comprising

Providing a keypad with a circuit board carrying switches, and multiple keys displaceable toward the circuit board to activate a corresponding switch, each key having visible area (*e.g., Takala teaches in column 1, lines 20-32 that* ***a touch screen is a type of combination of keypad and display.*** ***Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the***

surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch. *Takala teaches in column 4, lines 14-45 that the key can be made to operate by raising the selector from the surrounding surface using the appropriate control matrix to increase the magnitude of the electric or magnetic field applied to the layer. Using the key device,* ***an electronic drawing board*** *can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; see column 4, lines 55-67 and column 7, lines 24-40; see also Fig. 1 and column 5, lines 50-65*), at least one of the areas comprising a designated area containing a field-stable electrophoretic ink (*E-ink is a field-stable electrophoretic ink and Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8*); and

Passing a field through only selected regions of the field-stable electrophoretic ink in the designated area to alter a visual characteristic of the ink in the selected regions to form a desired graphic label visible within the designated area (*Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8).*

Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch. Takala discloses providing E-ink and determining the height of the raised surface.

Takala thus discloses the keys include the discrete manipulable raised selectors, each raised selector having a predefined physical shape because the height is pre-determined in relation to the magnitude and/or the duration of the key press (*e.g., the conductive field layers and the material layers have the predetermined shapes wherein the predetermined shape does not change with respect to each key character being displayed on the E-ink layer; see Takala column 4)* and **the ink is visible from an exposed surface of the manipulable raised selectors because the imaging in the E-ink layer is visible from the exposed surface of the raised selectors** (column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55).

Although Takala does not expressly disclose the term "keycaps", Takala discloses the key selectors raised at certain height above the surrounding surface of the keypad and thus performs the function of keycaps. Takala's key selectors inherently have covers that serve as function of the keycaps because keycaps are covers for the keys.

Paratore discloses "keycaps" in Figs. 3-4, e.g., the cover members 26 of Figs. 3-4. Paratore discloses keys in a keypad having indicia positioned relative to the key so as to be visible to a user and each key is usable for multiple input functions.

Therefore, having the combined teaching of Paratore and Takala, it would have been obvious to one of the ordinary skill in the art, at the time the invention was made, to have incorporated keycaps covering the raised selectors of Takala to cover and protect the keys of Takala.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 39-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

For example, the base claim 39 recites the claim limitation, "placing a printer capable of generating a field in a position external to the device and adjacent an exposed outer surface of the device and passing a field from the printer through the designated area of the device to remove a previously applied graphic label from the designated area while forming a new graphic label within the designated area", which is not described in the specification. For example, "placing a printer capable of generating a field in a position external to the device", however, this claim limitation is in contrary to what has been disclosed, in lines 19-20 on Page 11, the keypad printer is integrally manufactured with the device.

To comply with the "written description" requirement of 35 U.S.C. 112, first paragraph, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filling date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). For purposes of written description, one shows "possession" by descriptive means such as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Such descriptive means cannot be found in the disclosure for the inventions of the base claim 39.

Claims 40-42 depend upon the claim 39 and are rejected due to their dependency on the claim 39.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 58 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "without substantially changing" in claim 58 is a relative term which renders the claim indefinite. The term "without substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For example, the specification describes in lines 5-6 of Page 10 altering the visual characteristics by moving the keycaps up or down within the sphere by electrophoresis. Moving the keycaps up and down has clearly substantially changed a three-dimensional physical shape of the key when the key is viewed relative to the keypad.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 7-11, 13-24, 28, 30-35, and 37-38 and 58-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takala et al. U.S. Patent No. 6,788,294 (hereinafter Takala) in view of Paratore et al. U.S. Patent No. 6,259,044 (hereinafter Paratore).

Claim 1:

Takala teaches a method of changing the visual appearance of a designated area of an exposed surface of a discrete, manipulable key of a keypad, the method comprising

Providing a keypad with a circuit board carrying switches, and multiple keys displaceable toward the circuit board to activate a corresponding switch, each key having visible area (*e.g., Takala teaches in column 1, lines 20-32 that* ***a touch screen is a type of combination of keypad and display.*** ***Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch****. Takala teaches in column 4, lines 14-45 that the key can be made to operate by raising the selector from the surrounding surface using the appropriate control matrix to increase the magnitude of the electric or magnetic field applied to the layer. Using the key device,* ***an electronic drawing board*** *can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; see column 4, lines 55-67 and column 7, lines 24-40; see also Fig. 1 and column 5, lines 50-65*), at least one of the areas comprising a designated area containing a field-stable electrophoretic ink (*E-ink is a field-stable electrophoretic ink and Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the*

duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8); and

Passing a field through only selected regions of the field-stable electrophoretic ink in the designated area to alter a visual characteristic of the ink in the selected regions to form a desired graphic label visible within the designated area (*Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8).*

Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch. Takala discloses providing E-ink and determining the height of the raised surface.

Takala thus discloses the keys include the discrete manipulable raised selectors, each raised selector having a predefined physical shape because the height is pre-determined in

relation to the magnitude and/or the duration of the key press (*e.g., the conductive field layers and the material layers have the predetermined shapes wherein the predetermined shape does not change with respect to each key character being displayed on the E-ink layer; see Takala column 4)* and **the ink is visible from an exposed surface of the manipulable raised selectors because the imaging in the E-ink layer is visible from the exposed surface of the raised selectors** (column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55).

Although Takala does not expressly disclose the term "keycaps", Takala discloses the key selectors raised at certain height above the surrounding surface of the keypad and thus performs the function of keycaps. Takala's key selectors inherently have covers that serve as function of the keycaps because keycaps are covers for the keys.

Paratore discloses "keycaps" in Figs. 3-4, e.g., the cover members 26 of Figs. 3-4. Paratore discloses keys in a keypad having indicia positioned relative to the key so as to be visible to a user and each key is usable for multiple input functions.

Therefore, having the combined teaching of Paratore and Takala, it would have been obvious to one of the ordinary skill in the art, at the time the invention was made, to have incorporated keycaps covering the raised selectors of Takala to cover and protect the keys of Takala.

Claim 7:

The claim 7 encompasses the same scope of invention as that of the claim 6 except additional claim limitation that the electric field is generated by electrically conductive elements

within the device. However, Takala further discloses the claim limitation that the electric field is generated by electrically conductive elements within the device (Takala column 6, lines 21-40).

Claim 8:

Takala further discloses the claim limitation of at least one of the electrically conductive elements is disposed within the keys (Takala Fig. 1 and column 5, lines 50-67, column 6, lines 1-40).

Claim 9:

The claim 9 encompasses the same scope of invention as that of the claim 7 except additional claim limitation that the electrically conductive elements comprise conductors shaped to form an intended graphic image. However, Takala further discloses the claim limitation that the electrically conductive elements comprise conductors shaped to form an intended graphic image (column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55).

Claim 10:

The claim 10 encompasses the same scope of invention as that of the claim 7 except additional claim limitation of the electrically conductive elements being arrays of transistors. However, Takala further discloses arrays of transistors (column 6, lines 21-57).

Claim 11:

The claim 11 encompasses the same scope of invention as that of the claim 1 except additional claim limitation that the field is passed through the ink by a printer placed in close proximity to the designated area. However, Takala further discloses the claim limitation that the field is passed through the ink by a printer placed in close proximity to the designated area (*e.g.*,

the printer is connected to the convergence device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55).

Claim 13:

The claim 13 encompasses the same scope of invention as that of the claim 1 except additional claim limitation that the visual characteristic is altered as a function of subscriber services selected by a user. However, Takala further discloses the claim limitation that the visual characteristic is altered as a function of subscriber services selected by a user (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55; see column 8-9*).

Claim 14:

The claim 14 encompasses the same scope of invention as that of the claim 13 except additional claim limitation that the visual characteristic is altered as a function of subscriber services selected with the data input device.

However, Takala further discloses the claim limitation that the visual characteristic is altered as a function of subscriber services selected with the data input device (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55; column 8-9*).

Claim 15:

The claim 15 encompasses the same scope of invention as that of the claim 1 except the additional claim limitation of the visual characteristic being altered intermittently. However, Takala further discloses the claim limitation of the visual characteristic being altered intermittently (*e.g., the key press are done intermittently; see column 4, lines 14-43*).

Claim 16:

The claim 16 encompasses the same scope of invention as that of the claim 15 except additional claim limitation that the visual characteristic is altered intermittently to provide a series of graphics identifying third parties accessible by manipulating an input region of the device corresponding to the designated area. However, Takala further discloses the claim limitation that the visual characteristic is altered intermittently to provide a series of graphics identifying third parties accessible by manipulating an input region of the device corresponding to the designated area (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55).*

Claim 17:

The claim 17 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of sending a signal to the input device to trigger altering of the visual characteristic. However, Takala further discloses the claim limitation of sending a signal to the input device to trigger altering of the visual characteristic (*e.g., the press of the selector can be detected and located as a local increase of electrical conductivity in the ER layer, using constant voltage between the perpendicularly oriented conductor layers surrounding the ER layer and the down movement of the key can be achieved by increasing the magnitude of the electric and/or*

magnetic field applied to the layer of material whose volume decreases with an increase in the magnitude of the electric and/or magnetic field, in the position where the local increase of electrical conductivity was detected in the ER layer; see column 4, lines 14-43; column 8, lines 19-65).

Claim 18:

The claim 18 encompasses the same scope of invention as that of the claim 17 except additional claim limitation that the signal is sent from a remote location over a cellular or other wireless network or communication system. However, Takala further discloses the claim limitation that the signal is sent from a remote location over a cellular or other wireless network or communication system (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55).*

Claim 19:

The claim 19 encompasses the same scope of invention as that of the claim 18 except additional claim limitation that the signal provides data to identify both a series of graphics and key functions associated with each graphic. However, Takala further discloses the claim limitation that the signal provides data to identify both a series of graphics and key functions associated with each graphic (*e.g., column 5, lines 50-65 and column 7, lines 24-41*).

Claim 20:

The claim 20 encompasses the same scope of invention as that of the claim 17 except additional claim limitation that the signal activates a graphic already resident in memory with the device. However, Takala further discloses the claim limitation that the signal activates a graphic

already resident in memory with the device (*e.g., Takala discloses creating the user interface to create a key or keys to the key element, retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field; column 8, lines 39-65*).

Claim 21:

The claim 21 encompasses the same scope of invention as that of the claim 17 except additional claim limitation that the signal includes data describing a graphic previously unknown to the device. However, Takala further discloses the claim limitation that the signal includes data describing a graphic previously unknown to the device (*column 8, lines 39-65*).

Claim 22:

The claim 22 encompasses the same scope of invention as that of the claim 1 except additional claim limitation that the desired graphic label corresponds to a language-specific variant of an alphabetical character. However, Takala further discloses the claim limitation that the desired graphic label corresponds to a language-specific variant of an alphabetical character (*column 3, lines 9-20 and column 8, lines 39-65*).

Claim 23:

The claim 23 encompasses the same scope of invention as that of the claim 22 except additional claim limitation of detecting manipulation of a specific key of the keypad and, in response to detecting said manipulation, replacing a first language-specific variation of an alphabetic character associated with an alphanumeric key last manipulated before the specific key was manipulated, with a second language-specific variation of an alphabetic character associated with an alphanumeric key. However, Takala further discloses the claim limitation of

detecting manipulation of a specific key of the keypad and, in response to detecting said manipulation, replacing a first language-specific variation of an alphabetic character associated with an alphanumeric key last manipulated before the specific key was manipulated, with a second language-specific variation of an alphabetic character associated with an alphanumeric key (*column 3, lines 9-20 and column 8, lines 39-65*).

Claim 24:

Takala teaches a data input device comprising

A keypad including an array of keys (*Takala teaches in column 1, lines 20-32 that* ***a touch screen is a type of combination of keypad and display.*** ***Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch****. Takala teaches in column 4, lines 14-45 that the key can be made to operate by raising the selector from the surrounding surface using the appropriate control matrix to increase the magnitude of the electric or magnetic field applied to the layer. Using the key device, an electronic drawing board can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field,*

thus creating a three-dimensional plot; *see column 4, lines 55-6, column 5, lines 50-65 and column 7, lines 24-40*); and

An array of key switches (sensors beneath the selectors) disposed beneath an array of keys (selectors) and responsive to manipulation of the keys by a user to register an input associated with the manipulated keys (*e.g., the key pressure can be detected directly from layer 13 by means of sensors measuring the electric field or by replacing the ER layer and its surrounding conductor layers with a layer of touch-sensitive material; see column 7, lines 41-55; see also the sensor-based layer solutions; column 8, lines 19-65*);

Wherein the at least some of the keys each contain a field-stable electrophoretic ink responsive to passing a field (*electric field; column 5, lines 50-65*) there though to alter a visual characteristic of the key to form a desired graphic label visible within the key (*E-ink is a field-stable electrophoretic ink and Takala discloses providing E-ink and determining* ***the height of the raised surface*** *or keys based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; column 5, lines 50-65 and column 8, lines 19-65*; *column 3, lines 30-55, column 4, lines 14-43 and column 5, lines 50-65*).

Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the

boundaries between different selectors are clearly distinguishable and detectable by touch. Takala discloses providing E-ink and determining the height of the raised surface.

Takala thus discloses the keys include the discrete manipulable raised selectors, each raised selector having a predefined physical shape and the ink is visible from an exposed surface of the manipulable raised selectors (*e.g., the discrete selectors forming the plurality of keys,* ***keys protrude from the surface of the key element in column 8****. See also Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20*).

Although Takala does not expressly disclose the term "keycaps", Takala discloses the key selectors raised at certain height above the surrounding surface of the keypad and thus performs the function of keycaps.

Paratore discloses "keycaps" in Figs. 3-4, e.g., the cover members 26 of Figs. 3-4. Paratore discloses keys in a keypad having indicia positioned relative to the key so as to be visible to a user and each key is usable for multiple input functions.

Therefore, having the combined teaching of Paratore and Takala, it would have been obvious to one of the ordinary skill in the art, at the time the invention was made, to have incorporated keycaps covering the raised selectors of Takala to cover and protect the keys of Takala.

Claim 28:

Takala further discloses the claim limitation that the array of switches is responsive to displacement of the keycaps toward the switches (*e.g., the key pressure can be detected directly from layer 13 by means of sensors measuring the electric field or by replacing the ER layer and*

its surrounding conductor layers with a layer of touch-sensitive material; see column 7, lines 41-55; see also the sensor-based layer solutions; column 8, lines 19-65. See also Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20 and column 7, lines 23-41).

Claim 30:

Takala further discloses the claim limitation that the electric field is generated by electrically conductive elements within the device (*column 6, lines 21-40*).

Claim 31:

Takala further discloses the claim limitation of at least one of the electrically conductive elements disposed within the keys (*Fig. 1 and column 5, lines 50-67, column 6, lines 1-40*).

Claim 32:

Takala further discloses the claim limitation that the at least one key includes electrically conductive elements (column 6, lines 21-40) and disposed to overlap in plan view (*the key-based user interface has a flat surface when the electric field is switched off; see column 4, lines 45-50 and Figs. 2-3*), with each conductive element shaped to provide a different graphic image visible from the exposed key surface (*Fig. 3, column 5, lines 50-65 and column 8, lines 39-65*).

Claim 33:

Takala further discloses the claim limitation that the electrically conductive elements are disposed on a substrate beneath the keys (*e.g., the electric field sensors disposed beneath the selectors and installed in the electric field matrix 14 of Fig. 1 controlling the layer 13; see column 4, lines 14-43 and column 6, lines 1-57*).

Claim 34:

The claim 34 encompasses the same scope of invention as that of the claim 33 except additional claim limitation that the keys are formed of a material that conducts electricity along a single axis. However, Takala further discloses the claim limitation that the keys are formed of a material that conducts electricity along a single axis (*column 4, lines 14-43*).

Claim 35:

The claim 35 encompasses the same scope of invention as that of the claim 30 except additional claim limitation that the electrically conductive elements form an active matrix of transistors. However, Takala further discloses electrically conductive elements forming an active matrix of transistors for conducting electric signals (column 4, lines 14-43 and *column 6, lines 1-57; the layer comprising material whose volume is responsive to field magnitude is controlled by an electric and/or magnetic field matrix 14 of Fig. 1 that is formed of a set of electrodes and/or coils and the filed matrix 14 is a passive or active matrix known from prior art. column 6, lines 1-57*).

Claim 37:

The claim 37 encompasses the same scope of invention as that of the claim 24 except additional claim limitation of the input device in combination with a remote printer placed in close proximity to the keys and adapted to generate and pass the field through the ink of the device. However, Takala further discloses the claim limitation of the input device in combination with a remote printer placed in close proximity to the keys and adapted to generate and pass the field through the ink of the device (*e.g., digital divergence means the integration of various different electronic devices into one common device including the controlling of a remote*

printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55).

Claim 38:

Takala teaches a method of changing the visual appearance of keys of a keypad, the method comprising

Providing an assembled keypad (*column 3, lines 10-20 and Fig. 1*) with at least one key having an elevated, exposed key surface manipulable by a user (*column 4, lines 14-43 and keys protrude from the surface of the key element; column 7, lines 24-41 and column 8, lines 19-65*) to depress the key relative to the keypad (column 4, lines 14-43), the key containing multiple electrically conductive elements electrically isolated from each other (*columns 3-4 and 6*) and disposed to overlap in plan view (*the key-based user interface has a flat surface when the electric field is switched off; see column 4, lines 45-50 and Figs. 2-3*), with each conductive element having a predetermined shape (*e.g., the conductive field layers and the material layers have the predetermined shapes wherein the predetermined shape does not change with respect to each key character being displayed on the E-ink layer; see Takala column 4)* and configured to provide a graphic image corresponding to the predetermined shape when exposed to an electric field, the graphic image being visible from the exposed key surface (*e.g., Takala teaches in column 1, lines 20-32 that* ***a touch screen is a type of combination of keypad and display.***

Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific

settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch. *Takala teaches in column 4, lines 14-45 that the key can be made to operate by raising the selector from the surrounding surface using the appropriate control matrix to increase the magnitude of the electric or magnetic field applied to the layer. In column 5, lines 50-65 and also column 4-5 Takala discloses using the key device, an electronic drawing board can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot and pressing of each key provides a different graphic image; see column 4, lines 55-67 and column 7, lines 24-40*);

Selecting from among the graphic image associated with the electrically conductive elements (*e.g., column 5, lines 50-65 and also column 4-5 Takala discloses using the key device, an electronic drawing board can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands*

with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; see column 4, lines 55-67 and column 7, lines 24-40); and

Passing an electric field through a selected conductive element in the key to form desired graphic label visible at the exposed surface of the key (*e.g., column 5, lines 50-65 and also in column 4-5 Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12).*

Although Takala does not expressly disclose, "predetermined shape" for the keys, Takala discloses the key selectors raised at certain height above the surrounding surface of the keypad and thus performs the function of keycaps.

Paratore discloses the predetermined shapes for keys and the keycaps in Figs. 3-4, e.g., the cover members 26 of Figs. 3-4. Paratore discloses keys in a keypad having indicia positioned relative to the key so as to be visible to a user and each key is usable for multiple input functions.

Therefore, having the combined teaching of Paratore and Takala, it would have been obvious to one of the ordinary skill in the art, at the time the invention was made, to have incorporated keycaps covering the raised selectors of Takala to cover and protect the keys of Takala such that the keys as enclosed by the keycaps have the visual appearance of the predetermined shapes as the keycaps have the fixed dimensions.

Claim 58:

Takala teaches a method of changing the visual appearance of a designated area of an exposed surface of a discrete, manipulable key of a keypad, the method comprising

Providing a keypad with a circuit board carrying switches, and multiple keys displaceable toward the circuit board to activate a corresponding switch, each key having visible area (*e.g., Takala teaches in column 1, lines 20-32 that* ***a touch screen is a type of combination of keypad and display.*** ***Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch****. Takala teaches in column 4, lines 14-45 that the key can be made to operate by raising the selector from the surrounding surface using the appropriate control matrix to increase the magnitude of the electric or magnetic field applied to the layer. Using the key device,* ***an electronic drawing board*** *can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected*

in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; *see column 4, lines 55-67 and column 7, lines 24-40; see also Fig. 1 and column 5, lines 50-65*), at least one of the areas comprising a designated area containing a field-stable electrophoretic ink (*E-ink is a field-stable electrophoretic ink and Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8*); and

Passing a field through only selected regions of the field-stable electrophoretic ink in the designated area to alter a visual characteristic of the ink in the selected regions to form a desired graphic label visible within the designated area (*Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8).*

Takala teaches in column 3, lines 10-30 a key pad implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch. Takala discloses providing E-ink and determining the height of the raised surface.

Takala thus discloses the keys include the discrete manipulable raised selectors, each raised selector having a predefined physical shape and the ink is visible from an exposed surface of the manipulable raised selectors.

Although Takala expressly discloses altering the visual characteristic of the ink to form the desired graphic label, Takala does not expressly disclose "the visual characteristic of the ink is altered to form the desired graphic label **without substantially changing a three-dimensional physical shape of the corresponding key**". However, Takala at least suggests the claim limitation of altering the visual characteristic of the ink by altering the magnitude of the field, without substantially changing a three-dimensional physical shape of the corresponding key in the case that the user interface is implemented for the weak-eyed persons wherein the areas or letters are raised up from the user interface surface so that the weak-eyed user could interpret these by the sense of touch in fingers. It is clear from Takala's teaching in column 5, lines 10-25 that, when the electric field is on, the physical shapes of the raised letters have not been substantially changed, i.e., the volume of the raised letters remains fixed when the magnitude of the electric field remains unchanged (See column 5, lines 10-25).

Paratore discloses "altering the visual characteristics of the ink without substantially changing a three-dimensional physical shape of the corresponding key" in Figs. 3-4. Paratore discloses keys in a keypad having indicia positioned relative to the key so as to be visible to a user and each key is usable for multiple input functions.

Therefore, having the combined teaching of Paratore and Takala, it would have been obvious to one of the ordinary skill in the art, at the time the invention was made, to have incorporated fixed shaped keys into the raised selectors of Takala to manipulate the keys of Takala at all occasions.

Claim 59:

The claim 59 is subject to the same rationale of rejection set forth in the claim 58.

Claims 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takala et al. U.S. Patent No. 6,788,294 (hereinafter Takala) in view of Vance et al. U.S. Patent No. 6,498,600 (hereinafter Vance).

Claim 39:

Takala teaches a method of changing the visual appearance of a designated area of a data input device, the method comprising

Placing a printer (*e.g., the E-ink layer of Takala meets the claim limitation of "a printer" because the key character is printed on the E-ink layer; see column 3, lines 66-67*) capable of generating a field in a position to the device and adjacent an exposed outer surface of the device (*e.g., Takala implicitly discloses a remote printer by disclosing digital divergence means and the*

integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55); and

Passing a field from the printer through the designated area of the device to remove a previously applied graphic label from the designated area while forming a new graphic label visible within the designated area (*e.g., Takala discloses the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65. Takala discloses creating the user interface to create a key or keys to the key element, retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for* ***altering the field*** *wherein the memory refers to the printer memory; column 8, lines 39-65*).

Vance discloses placing a printer such as ink 407 of column 6, lines 1-30 within the device for generating a field and passing a field from the printer through the designated area of the device to remove a previously applied graphic label such as the un-illuminated graphic label before the user's touch action while forming a new illuminated graphic label in the designated area of the keyface after the user's touch (*e.g., Vance column 5, lines 35-65 disclosing the pairs of first and second contacts lying within respective regions that define faces of the keys of the*

keypad and the region defines a respective keyface for a key of keypad when the user touches the keyface; Vance further discloses illuminating the keys of the keypad through a white or gray colored flexible film. Moreover, Vance discloses in column 6, lines 45-55 that the selective masking is removed and the key nomenclature and artwork can be applied to the keys of the keypad when the user touches at least one key of the keypad).

Therefore, having the combined teaching of Vance and Takala, it would have been obvious to one of the ordinary skill in the art to have adapted the keys on the keypad of Takala to display a multitude of characters through the multiple selections so that the keypad of Takala is made adaptable (See Takala column 3, lines 30-45) for different purposes.

One of the ordinary skill in the art would have been motivated to do so to adapt the keys of Takala and to control the keys by one of the multiple selections on the key (Vance column 4, lines 50-52).

Claim 40:

The claim 40 encompasses the same scope of invention as that of the claim 39 except additional claim limitation that the designated area of the device contains an electrophoretic ink responsive to the field applied by the printer. However, Takala further discloses the claim limitation that the designated area of the device contains an electrophoretic ink responsive to the field applied by the printer (e.g., *Takala discloses the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the*

image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65. See the E-ink in column 6).

Claim 41:

The claim 41 encompasses the same scope of invention as that of the claim 39 except additional claim limitation of the field-stable ink. However, Takala further discloses E-ink which is field-stable ink (see column 6).

Claim 42:

The claim 42 encompasses the same scope of invention as that of the claim 39 except additional claim limitation that the input device is an assembled keypad wherein the printer is placed in close proximity to exposed surfaces of keycaps of the assembled keypad. However, Takala further discloses the claim limitation that the input device is an assembled keypad (column 3, lines 10-20) wherein the printer is placed in close proximity to exposed surfaces of keycaps of the assembled keypad (*e.g., digital divergence means the integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55*).

Claim 43:

Takala teaches a method of altering format of previously entered text through a keypad, the method including

Detecting manipulation of a specific key of the keypad (*for keypad, see column 3, lines 10-30; e.g., the layered key element for the key that is the object of the invention can be crated preferably by sandwiching a layer of a material whose volume is responsive to the magnitude of an electric or magnetic field and a layer of a material whose electrical conductivity is responsive to pressure, with electric or magnetic field matrices controlling these layers and constructed from a set of electrodes and/or coils when using a magnetic field; these can preferably be active or passive matrices. In addition to these layers,* ***an E-ink layer can be sandwiched on the key element and this makes it possible to integrate a display with key element*** *and a layer of material can be placed below the E-ink layer and its control matrix; see column 3, lines 30-55 and column 4; see also column 6-8*); and

In response to detecting manipulation (column 6), replacing a displayed, selected text with a differently formatted version of the selected text (*The keypad is implemented according to the language specific settings,* ***one keypad for different languages is implemented and one keypad for different devices; see column 3, lines 10-20****; e.g., user interface can be changed from a word processor keyboard into a camera user interface; see column 3-4 and* ***the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65***), according to a predetermined series of formats through which the selected text is cycled upon multiple,

sequential manipulations of the specific key (*The keypad is implemented according to the language specific settings, one keypad for different languages is implemented and one keypad for different devices; e.g., user interface can be changed from a word processor keyboard into a camera user interface; see column 3-4 and the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65; see also column 6-8*).

Vance discloses the sensors for detecting the contact between the user and the sensor and for detecting user's actions towards a specific key of the keypad (See Vance column 5, lines 55-60) and in response to detecting manipulation, replacing a displayed, selected text with a differently formatted version of the selected text, according to a predetermined series of formats through which the selected text is cycled upon multiple, sequential manipulations of the specific key (*e.g., Vance column 5, lines 35-65 disclosing the pairs of first and second contacts lying within respective regions that define faces of the keys of the keypad and the region defines a respective keyface for a key of keypad when the user touches the keyface; Vance further discloses illuminating the keys of the keypad through a white or gray colored flexible film. Moreover, Vance discloses in column 6, lines 45-55 that the selective masking is removed and the key nomenclature and artwork can be applied to the keys of the keypad when the user touches at least one key of the keypad*).

Therefore, having the combined teaching of Vance and Takala, it would have been obvious to one of the ordinary skill in the art to have adapted the keys on the keypad of Takala to

display a multitude of characters through the multiple selections so that the keypad of Takala is made adaptable (See Takala column 3, lines 30-45) for different purposes.

One of the ordinary skill in the art would have been motivated to do so to adapt the keys of Takala and to control the keys by one of the multiple selections on the key (Vance column 4, lines 50-52).

Claim 44:

The claim 44 encompasses the same scope of invention as that of the claim 43 except additional claim limitation that the series of formats include underlined, bold and italicized. However, Takala further discloses a word processor keypad with the series of formats including underlined, bold and italicized (column 3).

Claims 45-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takala et al. U.S. Patent No. 6,788,294 (hereinafter Takala) in view of Lanchais et al. U.S. Patent No. 4,857,840 (hereinafter Lanchais).

Claim 45:

Takala teaches a method of altering information displayed on an operable, designated data input area of a data input device, the method comprising

Providing a data input device with multiple data input areas having visible labels associated with the input areas (*Takala teaches in column 1, lines 20-32 that* ***a touch screen is a type of combination of keypad and display.*** ***Takala teaches in column 3, lines 10-30 a key pad***

implemented according to language-specific settings in which the selectors are clearly distinguished from the surrounding surface by their height and the differences in the key surfaces create a clear user interface where the boundaries between different selectors are clearly distinguishable and detectable by touch. *Takala teaches in column 4, lines 14-45 that the key can be made to operate by raising the selector from the surrounding surface using the appropriate control matrix to increase the magnitude of the electric or magnetic field applied to the layer. The keypad is implemented according to the language specific settings, one keypad for different languages is implemented and one keypad for different devices; e.g., user interface can be changed from a word processor keyboard into a camera user interface; see column 3-4 and the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65; see also column 6-8*); and

Transmitting a signal (*e.g., from MCU 31 of Fig. 3; see column 8, lines 25-35 wherein the MCU 31 is remote from the data input device 10*) to the data input device (*e.g., the data input device 10*) from a remote location to alter the visible label of at least one of the data input areas of the data input device in response to the signal (*A signal may be generated by the pen or a finger on the input device from a remote location such as a user remote from the input device; see column 4, lines 55-67; and the visible label on the key element is altered in response to the input signal; see column 3-4 and the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-*

ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65; see also column 6-8. Moreover, in another perspective, the device controlling section 30 and the function block diagram 40 of Fig. 3 has the software stored in the memory unit 34 to control the user interface 42, to create the user interface 41,and to identify functionality 43 wherein creating the user interface include creating a key or keys to the key element and retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field).

Lanchais discloses the receiver for providing data with a plurality of keys (See column 6, lines 35-60) wherein the keys can be colorimetric or alphabetic or numeric or symbolic which depend on the nature of the transmitting source and thus a displayed or broadcast piece of data can thus be selected from a plurality of possible pieces of data.

Therefore Lanchais discloses providing the keypad with the keys with multiple data input areas including the letters, words, figures, etc. and transmitting a signal by the receiver to the keypad from a remote location to alter the visible label of at least one of the data input areas in response to the signal.

Having the combined teaching of Lanchais and Takala, it would have been obvious to one of the ordinary skill in the art to have used a remote device for controlling the keys on the keypad of Takala because so that the keypad of Takala is made adaptable (See Takala column 3, lines 30-45) for different purposes.

One of the ordinary skill in the art would have been motivated to do so to adapt the keys of Takala and to control the keys using the transmitter-receiver for a portable device to display and/or broadcast the data received for the user's benefit (See Lanchais column 6, lines 20-30).

Claim 46:

The claim 46 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the data input area of the altered label contains a field-stable electrophoretic ink, the signal causing a field to be passed through selected regions of the field-stable electrophretic ink to alter a visual characteristic of the ink to alter the graphic label. However, Takala further discloses the claim limitation that the data input area of the altered label contains a field-stable electrophoretic ink, the signal causing a field to be passed through selected regions of the field-stable electrophretic ink to alter a visual characteristic of the ink to alter the graphic label (*Takala discloses functions implemented by software stored in the memory unit 34 to control the user interface 42, to crate the user interface 41 and to identify functionalities 43; column 6-8*).

Claim 47:

The claim 47 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the altered visible label contains one of advertisement, location, time or subscription-specific information. However, Takala further discloses that the altered visible label contains one of advertisement, location, time or subscription-specific information (*e.g., digital divergence means the integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate*

electric fields and passing the electric fields to the printer; see column 3, lines 30-55; Takala discloses displaying the signals on the keypad generated by the TV through the device controlling section 30 and the function block diagram 40 of Fig. 3 having the software stored in the memory unit 34 to control the user interface 42, to create the user interface 41,and to identify functionality 43 wherein creating the user interface include creating a key or keys to the key element and retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field).

Claim 48:

The claim 48 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the signal is transmitted to the input device over a cellular or other wireless network or communication system. However, Takala further discloses the claim limitation that the signal is transmitted to the input device over a cellular or other wireless network or communication system (*the device controlling section 30 and the function block diagram 40 of Fig. 3 has the software stored in the memory unit 34 to control the user interface 42, to create the user interface 41,and to identify functionality 43 wherein creating the user interface include creating a key or keys to the key element and retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field).*

Claim 49:

The claim 49 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the label is altered as a function of subscriber service selected by a user. However, Takala implicitly discloses the claim limitation that the label is altered as a

function of subscriber service selected by a user (*e.g., digital divergence means the integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55*).

Claim 50:

The claim 50 encompasses the same scope of invention as that of the claim 45 except additional claim limitation of receiving a label triggering signal from the data input device prior to transmitting said signal. However, Takala further discloses the claim limitation of receiving a label triggering signal from the data input device prior to transmitting said signal (e.g., receiving a key press triggering a key depression signal from the data input device; column 6).

Claim 51:

The claim 51 encompasses the same scope of invention as that of the claim 45 except additional claim limitation of the label being altered intermittently. However, Takala further discloses the key presses being entered intermittently and displaying the images generated by the key presses on the E-ink material (column 5).

Claim 52:

The claim 52 encompasses the same scope of invention as that of the claim 51 except additional claim limitation that the label is altered intermittently to provide a series of graphics identifying third parties accessible by manipulating the data input area associated with the label.

However, Takala further discloses the claim limitation that the label is altered intermittently to provide a series of graphics identifying third parties accessible by manipulating the data input area associated with the label (column 5, lines 50-65).

Claim 53:

The claim 53 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the transmitted signal provides data to identify both a series of graphics and key functions associated with each graphic. However, Takala further discloses the claim limitation that the transmitted signal provides data to identify both a series of graphics and key functions associated with each graphic (column 5, lines 50-65).

Claim 54:

The claim 54 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the transmitted signal activates a graphic already resident in memory within the device. However, Takala further discloses the claim limitation that the transmitted signal activates a graphic already resident in memory within the device (column 8, lines 39-65).

Claim 55:

The claim 55 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the signal includes data describing a graphic previously unknown to the device. However, Takala further discloses the claim limitation that the signal includes data describing a graphic previously unknown to the device (column 9, lines 29-34).

Claim 56:

The claim 56 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the data input areas are exposed surfaces of manipulable keycaps. However, Takala further discloses the claim limitation that the data input areas are exposed surfaces of manipulable keycaps (column 3-4).

Claim 57:

The claim 57 encompasses the same scope of invention as that of the claim 56 except additional claim limitation that the input device is a key pad wherein the keycaps are manipulated by a user to depress the keycaps relative to the keypad. However, Takala further discloses the claim limitation that the input device is a key pad (column 3, lines 10-20) wherein the keycaps (key elements) are manipulated by a user to depress the keycaps relative to the keypad (column 3-4).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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jcw Jinchengwang